

# Appendix A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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<p><b>CERTIFICATE UNDER 37 CFR 1.10:</b>  "Express Mail" mailing label number: EM362874568US  Date of Deposit: January 26, 1998</p> <p>I hereby certify that this paper or fee is being deposited with the U.S. Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Assistant Commissioner for Patents, Washington, D.C. 20231.</p> <p>By: <u>Jack L. Kirk</u>  Name: Jack L. Kirk</p>
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REQUEST FOR PROVISIONAL APPLICATION UNDER 37 C.F.R. § 1.53(b)(2)

## BOX PROVISIONAL PATENT APPLICATION

Assistant Commissioner for Patents  
Washington, DC 20231

Dear Sir:

This is a request for filing a Provisional application for patent under 37 CFR § 1.53(b)(2) entitled  
TRANSFORMATION/LINEAGE MODEL by the following inventor(s):

Full Name Of Inventor	Family Name Labrie	First Given Name Jacques	Second Given Name Joseph
Residence & Citizenship	City Sunnyvale	State or Foreign Country California	Country of Citizenship United States of America
Post Office Address	Post Office Address 1102 Susan Way	City Sunnyvale	State & Zip Code/Country California 94087/U.S.A.

1. ☒ Enclosed is the Provisional application for patent as follows: 10 pages of specification, and 6 sheets of drawings.
2. ☐ A Verified Statement that this filing is by a small entity (37 CFR 1.9, 1.27, 1.28) is attached.
3. ☒ Payment of Provisional filing fee under 37 C.F.R. § 1.16(k) :
  - ☒ Attached is a check in the amount of \$ 150.00.
  - ☐ Please charge Deposit Account No. 13-2724.
  - ☐ PAYMENT OF THE FILING FEE IS BEING DEFERRED.
4. ☒ The Commissioner is hereby authorized to charge any additional fees as set forth in 37 CFR §§ 1.16 to 1.18 which may be required by this paper or credit any overpayment to Account No. 13-2724.
5. ☐ Enclosed is an Assignment of the invention to \_\_\_\_\_, Recordation Form Cover Sheet and a check for \$ \_\_\_\_\_ to cover the Recordation Fee.
6. ☐ Also Enclosed:

7. ☐ The invention was made by the following agency of the United States Government or under a contract with the following agency of the United States Government:
8. ☒ Address all future communications to the Attention of George H. Gates (may only be completed by attorney or agent of record) at the address below.
9. ☒ A return postcard is enclosed.

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ghg/jk/jlk

## TRANSFORMATION/LINEAGE MODEL

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is related to the following co-pending and commonly-assigned patent applications:

Application Serial No. 08/658,402, entitled "INFORMATION CATALOG SYSTEM WITH OBJECT-DEPENDENT FUNCTIONALITY," filed on June 5, 1996, by Lloyd Harper et al., attorney's docket number SA9-93-078X, which is a continuation of Application Serial No. 08/135,355, filed on October 8, 1993, by Lloyd Harper et al., attorney's docket number SA9-93-078, which was abandoned on June 5, 1996; and

Application Serial No. 08/669,926, entitled "MECHANISM FOR METADATA," filed on June 25, 1996, by Khanh D. Ha et al., attorney's docket number ST9-96-0026; all of which applications are incorporated by reference herein.

**Visual Warehouse Architecture**

FIG. 1 is a block diagram illustrating a scalable data warehouse architecture 100 for a visual warehouse. The scalable data warehouse architecture 100 has a two-tier server architecture.

Data warehouse client computers 102 and 104 having, inter alia, monitors and data storage devices are connected to a DB2 control database 110. The client computers 102 and 104 communicate with the first tier of server computers 106 to request processing of a query. Execution of the query transfers data from a source database 118 and 122 to a target database 120 and 124. End user computers 126 and 128 are connected to the target databases 120 and 124, which enables users to perform data analysis at the end user computers 126 and 128.

The first tier of server computers comprises a server computer 106 connected to a DB2 control database 110. This server computer 106 is a manager server computer for interfacing with client computers 102 and 104 and exercising control over the second tier of server computers 112, 114, and 116. The manager server computer 106 receives a query from a client computer 102 or 104. The manager server computer 106 schedules the processing of the query and stores the query in the DB2 control database 110 for later forwarding to an agent server computer 112, 114, or 116 for execution of the query.

The second tier of server computers 112, 114, and 116 are agent server computers for transferring data between data sources 118 and 122 and data targets 120 and 124. The manager server computer 106 preferably communicates with the agent server computers 112, 114, and 116 via Transmission Control Protocol/Internet Protocol (TCP/IP). The agent server computers 112, 114, and 116 preferably communicate with databases 118, 120, 122, and 124 via Open Database Connectivity (ODBC). Once an agent server computer 112, 114, or 116 has executed a query, the agent server computer 112, 114, or 116 reports the results to the manager server computer 106. The manager server computer 106 stores the results in the control database 110. The client computers 102 and 104 can access the results in the control database 110. The second tier is scalable and is comprised of agent server computers 112, 114, and 116 for transferring data between data sources 118 and 122 and data targets 120 and 124.

Data is accessed through the agent server computers 112, 114, and 116. In particular, not every agent server computer 112, 114, and 116 is connected to every database. Instead, agent server computers 112, 114, and 116 are connected to pairs of data sources 118 and 122 and data targets 120 and 124. The manager server computer 106 schedules queries for execution by an agent server computer 112, 114, or 116 based upon availability of the agent server computers 112, 114, and 116 and based upon the data sources 118 and 122 and data targets 120 and 124 connected to particular agent server computers 112, 114,

and 116. Data transfers are therefore limited to those between a data source 118 and 122 and a data target 120 and 124 connected to a common agent server computer 112, 114, or 116.

One of the advantages of this technique is that it integrates the processes used at the different agent server computers 112, 114, and 116. The agent server computers 112, 114, and 116 are independent computers in that each can use its own computer program, operating system, hardware platforms, and data sources and data targets. Yet, the DB2 control database 110 allows for central control and documentation of both the structure of the warehouse and the currency of the data.

In the exemplary hardware environment, the client computers 102 and 104 and the server computers 106, 112, 114, and 116 may each include, inter alia, a processor, memory, keyboard, or display, and may be connected locally or remotely to fixed and/or removable data storage devices and/or data communications devices. Each of the computers 102, 104, 106, 112, 114, and 116 could also be connected to other computer systems via the data communications devices. Those skilled in the art will recognize that any combination of the above components, or any number of different components, peripherals, and other devices, may be used with the computers 102, 104, 106, 112, 114, and 116. Those skilled in the art will also recognize that the present invention may be implemented on a single computer, rather than multiple computers networked together.

**transformation/lineage model:**

a model that allows an information catalog user to determine the lineage of warehouse data by traversing a transformation model. The model allows a user to start at the data they want to access, and then if they have questions about how the data they are looking at was derived, they can navigate the catalog to see any 'transformations' that were applied to generate the data. From this point, the users can continue with their data analysis, or continue to follow the lineage by looking at the metadata about the source data. This process is iterative in that it allows the user to drill from the target warehouse data all the way back to the original source . See screen capture.

Finance	- target warehouse database
FINANCE.COST_BY_LOCATION	- target table
Objects under above table	- target columns
Sum of cost by location	- transformation producing
COST_BY_LOCATION	
FINANCE.COST_BOSTON	- source table user in above
transformation	
- and so on....	

#### **Start the journey**

When you're on a journey for information to solve business problems, finding the quickest and easiest route to your destination is crucial. Travel first class with DataGuide - without ever leaving your desktop.

You can use DataGuide in organizations of any size to catalog business information and make it available to anyone who needs it.

#### **Chart a course**

Use DataGuide's powerful searching capabilities to help you locate information quickly and easily.

You can search on keywords, values, and types of information. DataGuide not only finds your information, it also gives you the option to launch the desktop applications you use to put the information right at your fingertips.

#### **Capture your experience**

You can build on your experience by saving searches to reuse at any time. Running saved searches lets you see the most current information. Place saved search results on your desktop into your own collections for easy future reference. You never need to make the same trip twice.

#### **Blaze new trails**

If you're not sure what you are looking for, browse what is available. Information is organized into a logical structure so you can locate the information you need, or follow a trail to find what you need.

Use the built-in icon legend for quick reference to the types of information available: spreadsheets, charts, reports, tables, queries, images, video, and more.



**Travel at your own pace**

*For end users.* DataGuide provides a starting point for accessing information. It speeds you toward problem solving, and away from duplicate efforts to recreate what already exists.

*For information systems professionals.* DataGuide offers client/server efficiency, improves user satisfaction and frees up valuable time to focus on critical issues.

*For organizations.* DataGuide helps eliminate redundancy and expense, while extending the value of existing information resources.

**Accommodate your travelers**

DataGuide helps you quickly set up your information catalog, and customize it for your organization's needs. A comprehensive set of extractor utilities paves the way for you to access a wide variety of information sources. You can build a glossary of special terms and jargon to support the use of consistent terminology throughout your company. DataGuide lets you provide a list of information contacts to help users know where to go for more assistance. It also provides a news facility to quickly notify you of any updates to DataGuide information.

**Take the right road**

Leverage your information investments by using DataGuide to merge the power of your mainframe and mid-size computers with the convenience of client/server technology. Now you'll always have the information you need right at your desktop.

**Passport to success**

A world of information exists in your company. You need to find the quickest route to your destination when you're seeking information to solve business challenges. Let DataGuide be your passport to success.

**DataGuide**

DataGuide can be used with a variety of popular software products. IBM and non-IBM, that you may already have. It is part of a complete solution that brings the information you need to your desktop.

DataGuide information is stored on DB2 - the world-class database manager.

See the enclosed fact sheets for the requirements for each DataGuide User platform.

DataGuide Administrator is required for all DataGuide User environments.

## **DataGuide:**

- Provides a workgroup solution for information sharing
- Supports users on OS/2 and Windows
- Enables your staff and management team to locate key business information no matter where it is stored in your enterprise
- Provides "just-in-time" information to allow for informed business decisions
- Provides an information catalog of current and consistent information throughout your company
- Launches your decision support and desktop tools to access data
- Leverages your information assets and utilizes tools you already have
- Provides an integration point with multiple vendors, such as Business Objects.

**“DataGuide makes it possible to determine what information is available, where it resides, what it means, what form it’s in, who can provide additional information or assistance in regard to it, and how it is produced. It puts productivity, flexibility and manageability on the desktop of the Management and other Business Users.”**

DataGuide provides a powerful business-oriented solution to help end users locate, understand, and access enterprise data. In client/server information catalogs, business metadata (data about data) can be described in business terms, organized into subject areas, and customized to your workgroup's or enterprise's needs. DataGuide is IBM's Information Warehouse facility for integrating and managing end-user business metadata.

DataGuide User enables you to:

- Locate data in the information catalog by keyword text search or navigation ("drill down") through a subject area and business groupings
- Understand your data by browsing metadata descriptions in business terms
- Access the data by launching applications directly from DataGuide
  - DataGuide for OS/2 User can launch OS/2, Windows, DOS, and client/server applications.
  - DataGuide for Windows User can launch Windows and DOS applications.
- Communicate comments and corrections on metadata descriptions to the DataGuide administrator via a comments object
- Share administration of the DataGuide information catalog (when authorized)

**DataGuide products:**

- Provide a client/server information catalog
- Help you share and reuse company information
- Store information catalogs on DB2 for OS/2 on a LAN, DB2 for MVS, DB2 for AIX, DB2 Parallel Edition, DB2 for 400, or DB2 for Windows NT
- Be more productive when looking for data by using an easy-to-use graphic interface in either the powerful OS/2 or the familiar Microsoft Windows NT (or new Windows 95) environment
- Provide a workgroup solution for information sharing of objects including spreadsheets, charts, reports, tables, queries, images, videos, and more
- Share the same information catalogs with other DataGuide users across a LAN or enterprise
- Identify the owners for data via the contact object

**Hardware requirements****DataGuide for OS/2 User**

Runs on any workstation that supports OS/2 Warp with the following minimum configuration:

- Run on OS/2 or Windows

\*Each DataGuide environment requires one DataGuide Administrator to set up and maintain an information catalog. See the DataGuide Administrator fact sheet (GC28-8077-02) for DataGuide Administrator technical information.

- 486 processor
- 8514/A, XGA or SVGA display adapter, or equivalent
- 16MB of memory

DataGuide for OS/2 User installed in a LAN environment (shareable drives) uses .5MB of hard disk. DataGuide for OS/2 User installed on a stand-alone machine (nonshareable drive) uses 3MB of hard disk.

**DataGuide for Windows User**

Runs on any workstation that supports Microsoft Windows NT or Windows 95 with the following minimum configuration:

- 486 processor
- 8514/A, XGA or SVGA display adapter, or equivalent
- 16MB of memory

**DataGuide for Windows User** ~~uses~~  
1.5MB of hard disk.**Software requirements****DataGuide for OS/2 User**

- OS/2 Warp or subsequent releases
- DB2 Client Application Enabler for OS/2 2.1

LAN server/requester software such as the OS/2 Server/Requester is required when code is installed on a shareable drive.

**DataGuide for Windows User**

- Microsoft Windows NT or Windows 95
- DB2 Client Application Enabler for Windows 95/NT 2.1

LAN server/requester software such as the DOS LAN Server/Requester is required when code is installed on a shareable drive.

For more information or to order this product, contact your local software reseller or IBM marketing representative.

"Express Mail" mailing label number EM362874568US  
Date of Deposit JANUARY 26, 1998  
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to:  
Assistant Commissioner for Patents, Washington, D.C. 20231.

JACK L. KIRK  
(printed name)

Jack L. Kirk  
(signature)

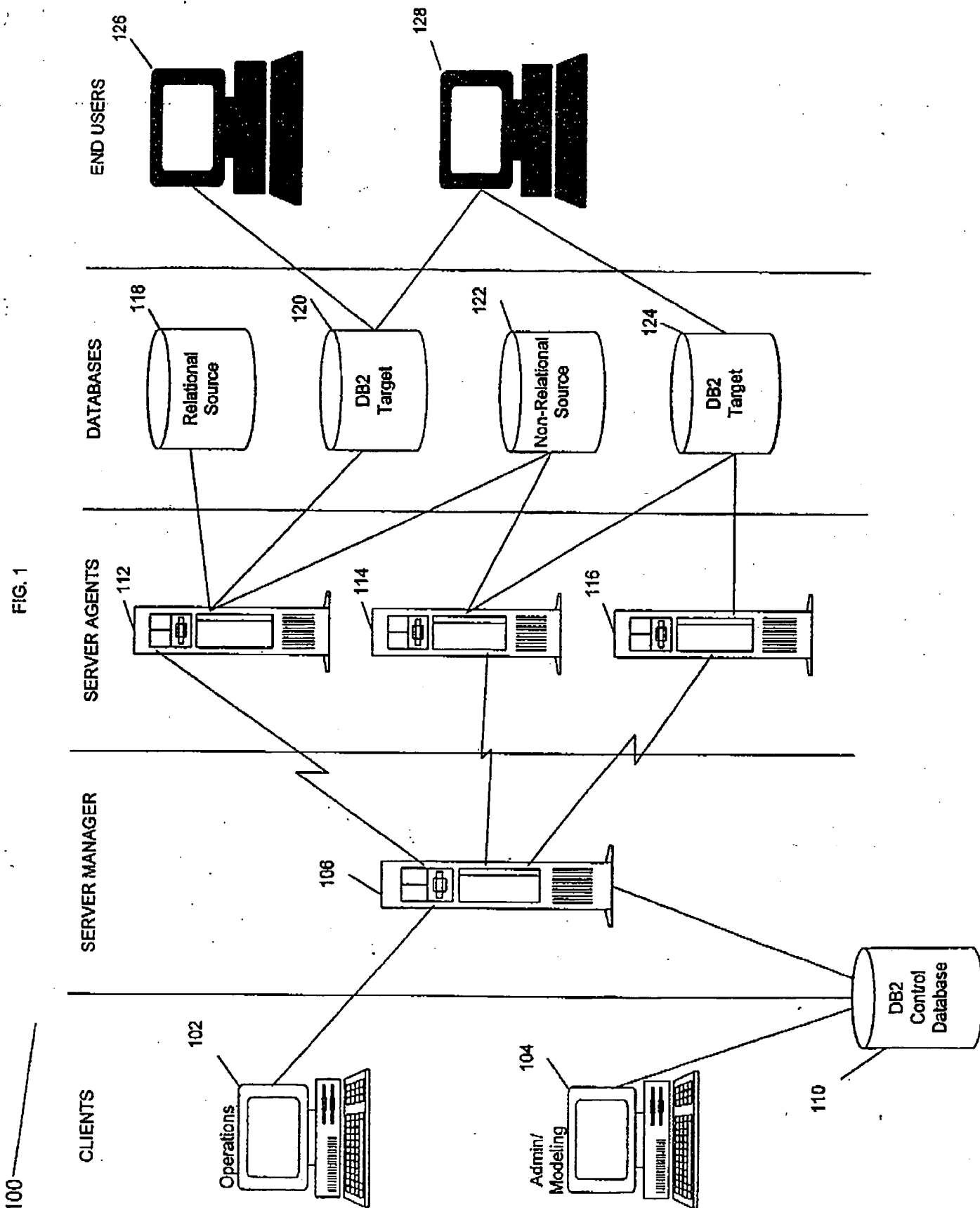
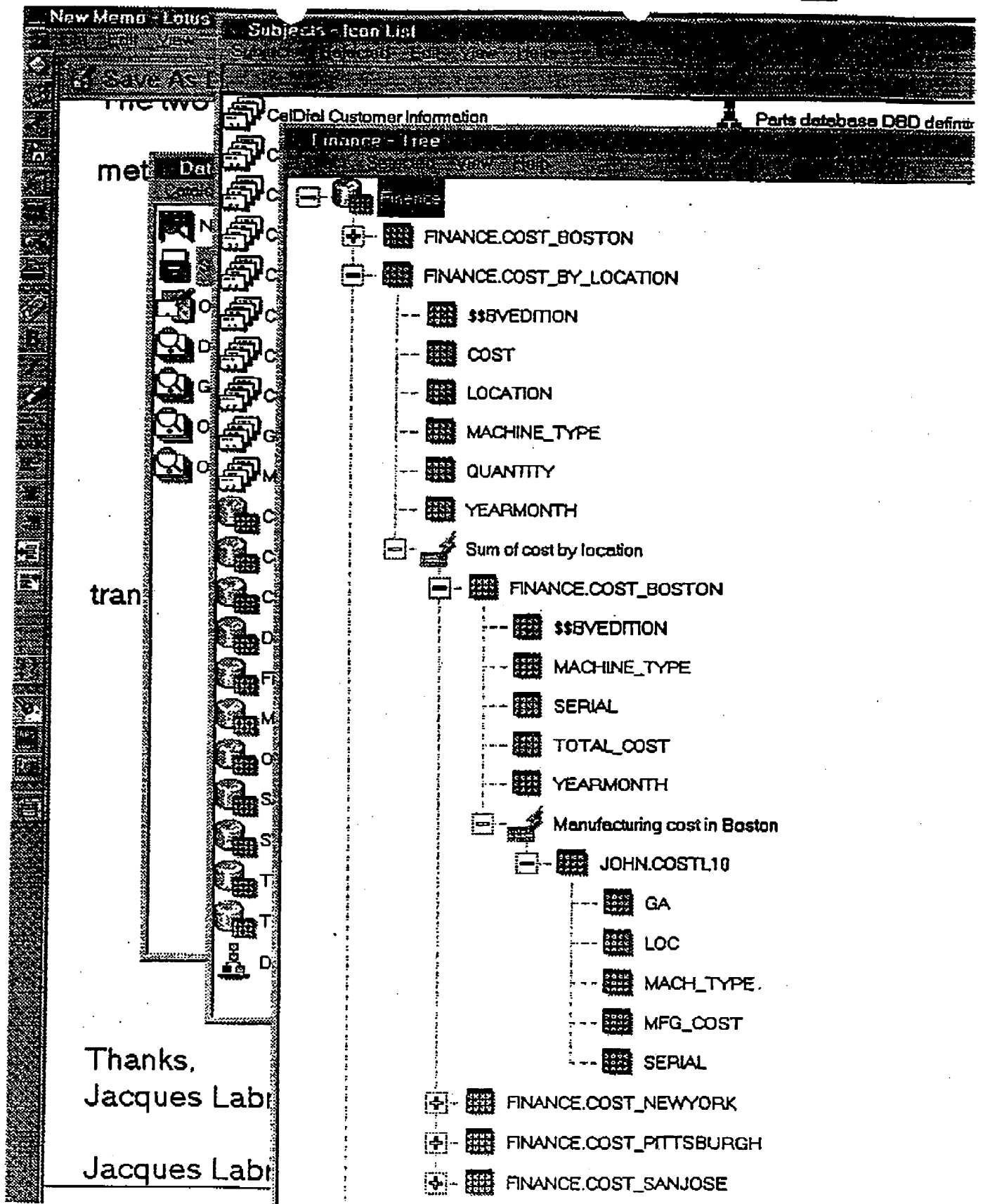


FIG. 2



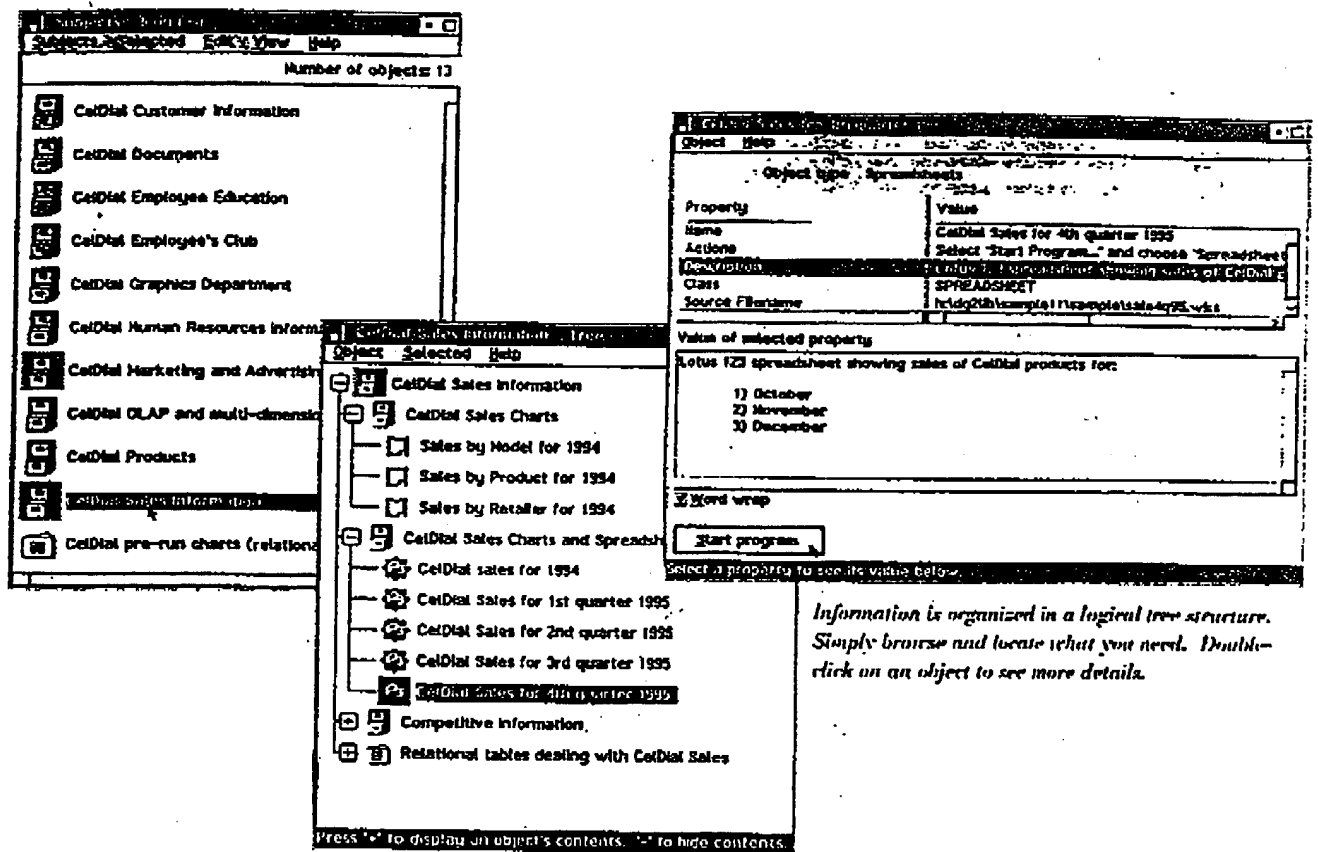


FIG. 3



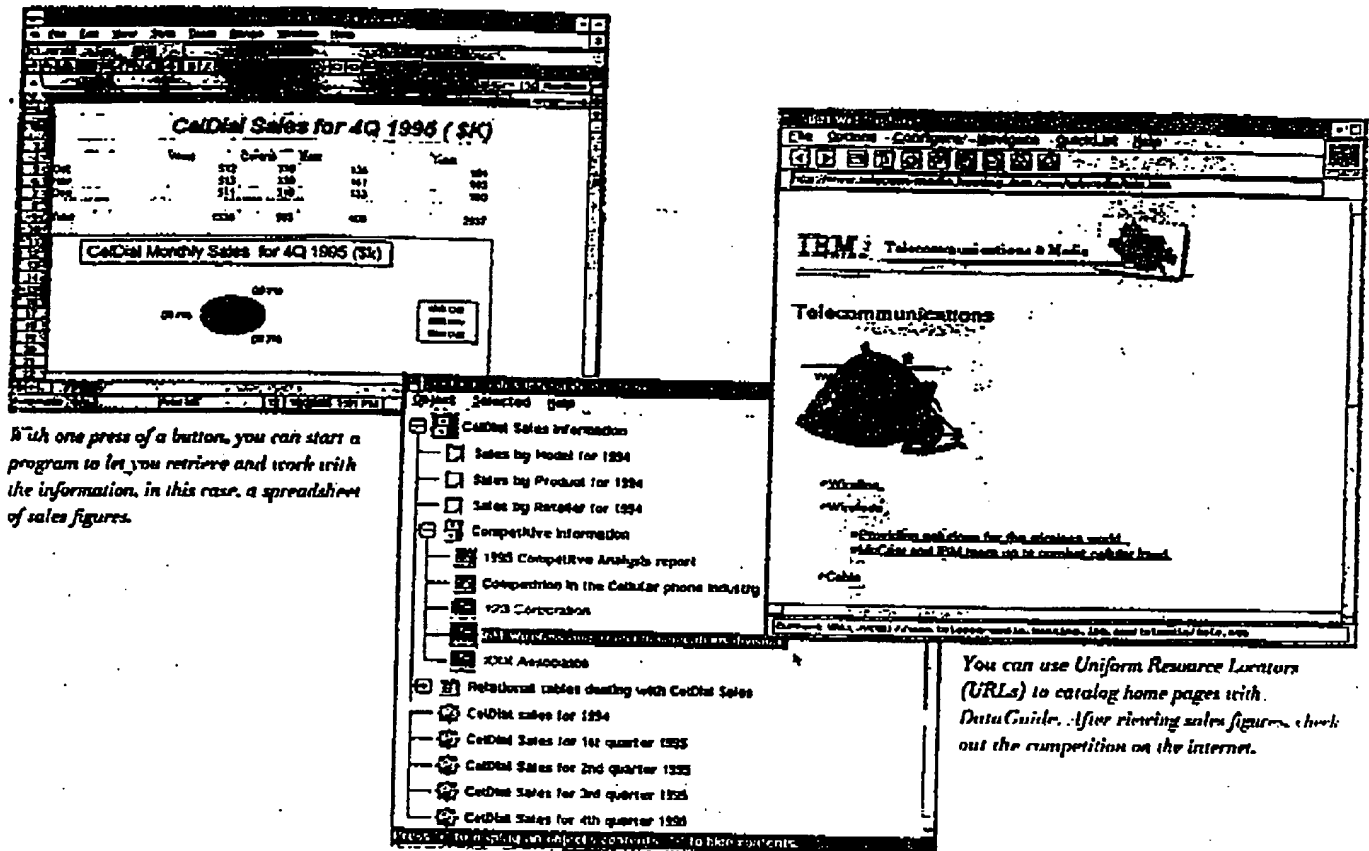


FIG. 4

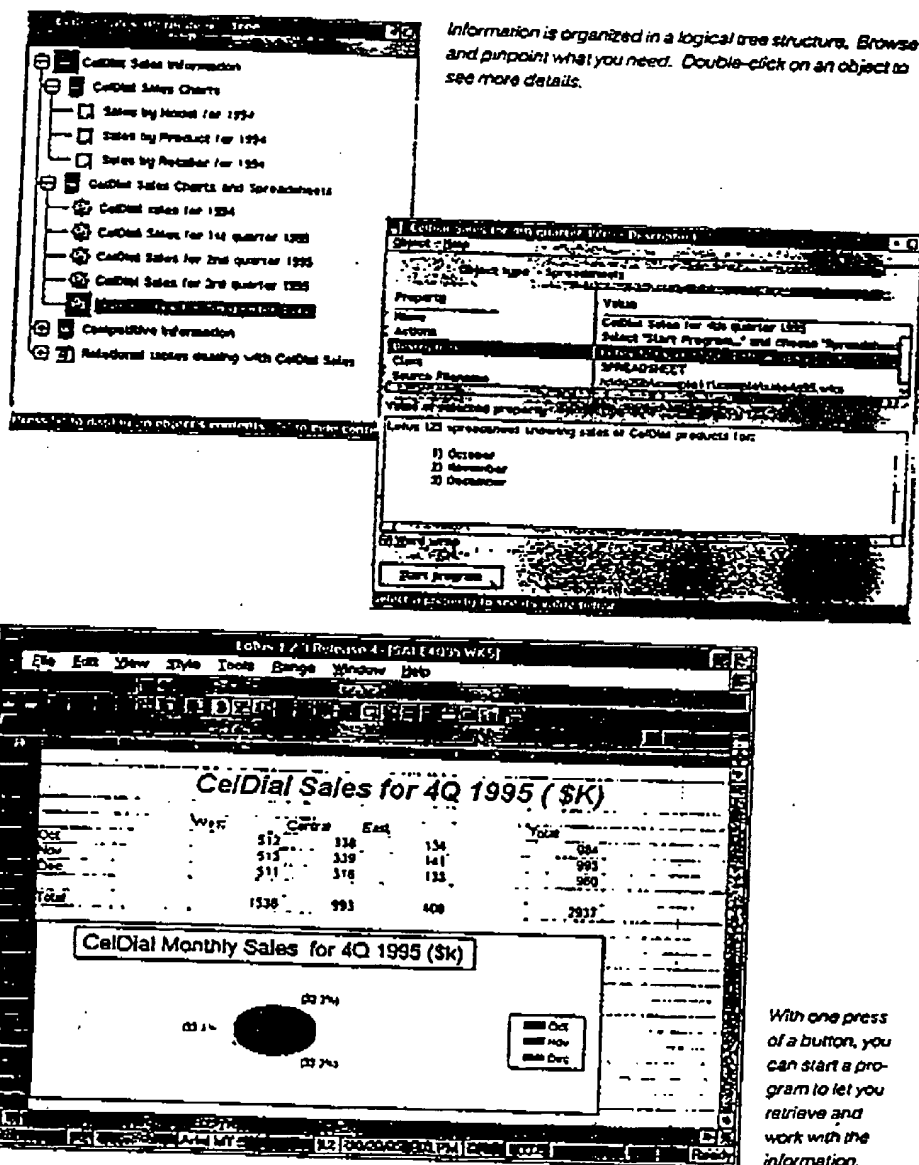


FIG. 5

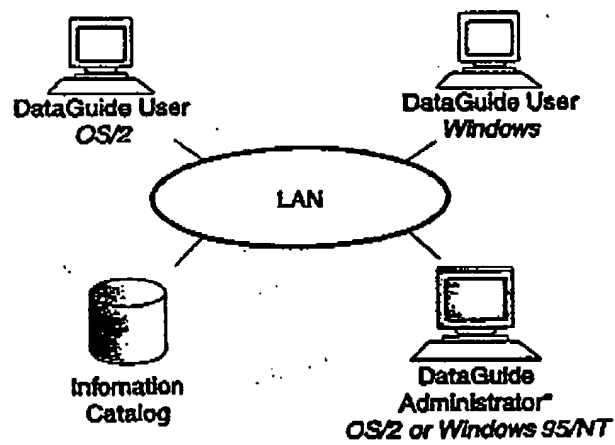


FIG. 6